

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER : 63051623
PUBLICATION DATE : 04-03-88

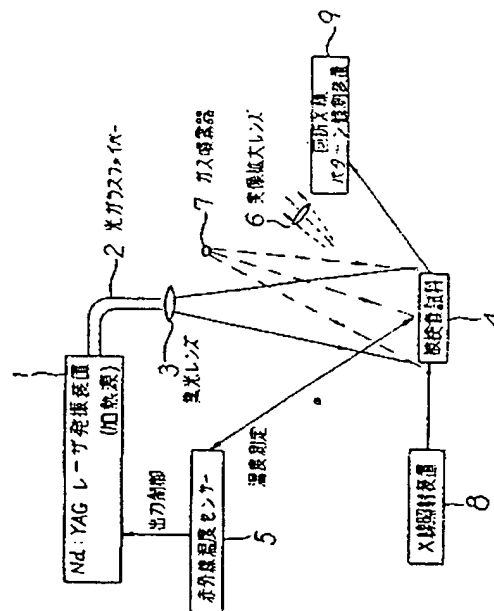
APPLICATION DATE : 20-08-86
APPLICATION NUMBER : 61196091

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INT.CL. : H01L 21/205 H01L 21/31 H01L 21/66

TITLE : REALTIME MANUFACTURING,
ANALYZING AND EVALUATING
DEVICE FOR CRYSTAL



ABSTRACT : PURPOSE: To provide a realtime and simple observation of the process of crystal growth while thermal and atmospheric environment is being changed by a method wherein a diffraction X-ray generator, a laser to be used for heating, an oscillator, an optical fiber, a temperature sensor, a gas jetting machine and the like, all of which can be commercially available, are used in the title device.

CONSTITUTION: Nd:YAG laser is led to a beam condensing lens 3 by an optical glass fiber 2 from a laser oscillating device 1, and the diameter, which is variable, of the laser beam spot on a sample 4 is set in the range of 0.5-10 mm. Also, the temperature of the sample is measured by an infrared ray temperature sensor 5, the result of which is fed back to the laser oscillating device 1, and it is controlled at the preset temperature. Oxygen, nitrogen, aqueous vapor, ammonia gas and the like are jetted out toward the sample 4, and the sample 4 is brought into the state wherein it is confined in the gas stream. At that time, the air in the neighborhood of the sample is removed, and the sample 4 is in the state that it does not come in contact with the air while it is under experiment. Also, the state of chemical change of the sample caused by heating can be observed by a pattern observing device 9 together with the change in diffraction X-ray irradiation device 8 which is made incident on the sample 4 from an X-ray irradiation device 8.

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